Key to Icon

Web site.*

720.01 Introduction

This section summarizes guidance in the *Regional Road Maintenance Endangered Species Act Program Guidelines* and other WSDOT manuals. As in the *Guidelines,* the section is organized by Program Elements (10) and Maintenance Categories (15). The *Guidelines* define BMPs that are expected to be used when performing maintenance activities. A range of BMP options are provided to achieve prescribed outcomes. This allows the crew supervisors the flexibility to select or modify BMPs for each site based on conditions in the field as long as they meet BMP outcomes that focus on avoiding and minimizing erosion/sedimentation, containing pollutants, and avoiding and minimizing impacts to habitat.

720.02 WSDOT Manuals

Technical guidance is summarized by reference to the WSDOT manuals described below. Refer to these documents for details. Most manuals can be accessed on line from the WSDOT Engineering Publications on-line library:

http://www.wsdot.wa.gov/fasc/EngineeringPublications/library.htm

(1) Regional Road Maintenance Endangered Species Act Program Guidelines

These *Guidelines* defines general and specific practices WSDOT will utilize to avoid adverse impacts to the aquatic environment from maintenance activities. Whenever avoidance is not attainable, impacts will be minimized. The *Guidelines* were developed in compliance with the Endangered Species Act, Section 4(d) Limitation #10 Roadside Maintenance. The document also has been reviewed for consistency with Hydraulic Permit Approval (HPA) requirements by the National Marine Fisheries Service (NMFS) and Washington State Department of Fish and Wildlife (WDFW), and for consistency with state water quality standards by Washington State Department of Ecology (Ecology).

The *Guidelines* are online at WSDOT's web site:

* Web sites and navigation referenced in this chapter are subject to change. For the most current links, please refer to the online version of the EPM, available through the ESO home page: http://www.wsdot.wa.gov/environment/

http://www.wsdot.wa.gov/maintenance/roadside/esa.htm

(2) Maintenance Manual (M 51-01)

This manual covers procedures for highway maintenance. In several chapters maintenance activities have environmental implications: emergency operations (hazardous materials spills), drainage (aquatic habitat, water quality, wetlands, shorelines), bridge repair, roadside maintenance (integrated vegetation management), snow and ice control, and procuring materials from quarries or pits. References in this section are to the March 2002 edition.

(3) Maintenance Accountability Process (MAP)

This document is the primary tool used by the Maintenance Office for evaluating program service delivery and identifying budget investment choices. For information on the Maintenance Accountability Process, see:

http://www.wsdot.wa.gov/maintenance/mgmt/accountability.htm

(4) Roadside Manual (M 25-30)

This manual provides consistent guidelines for roadside management, and supplements guidelines in WSDOT's *Roadside Classification Plan* (M 25-31). It is organized around a framework of roadside functions: operational, environmental, visual, and auxiliary. Environmental functions include water quality preservation, protection and improvement; stormwater detention and retention, wetland and sensitive area protection, noxious weed control, noise control, habitat protection and connectivity, air quality improvement, and erosion control. Sections of the manual offer resources on designated and sensitive areas, wetlands, water quality, wildlife, and noise abatement.

http://www.wsdot.wa.gov/

Click on Maps & Data, then Engineering Publications, then On-Line Technical Manual Library. Find Roadside Manual.

Or by direct link:

http://www.wsdot.wa.gov/fasc/engineeringpublications/Manuals/RoadsideManual.pdf

(5) Design Manual (M 22-01)

This manual is the basic reference for highway design.

http://www.wsdot.wa.gov/

Click on Maps & Data, then Engineering Publications, then On-Line Technical Manual Library. Find Design Manual, then select a version.

Or by direct link:

http://www.wsdot.wa.gov/fasc/EngineeringPublications/library.htm

720.03 Program Elements

The program elements are fully described in the *Regional Road Maintenance ESA Program Guidelines (Guidelines).*

(1) Regional Forum

A Regional Forum has been created from participating agencies. The Regional Forum provides a regional meeting for program discussion, coordination, and adaptive management. In terms of contributing to conservation, the Regional Forum provides a process whereby, as new information is gathered in each individual agency, it can be shared with other agencies across the State. Sharing information on successful BMP applications in the field, together with scientific research, creates a potential for each agency to improve its contribution to conservation over time. Additionally, if a problem with program implementation occurs in one jurisdiction, this information sharing prevents repeated problems.

(2) Program Review and Approval

The program review and approval process will require that each agency participating in the Regional Program comply with the ten program elements. The Washington State Department of Transportation (WSDOT) Highways and Local Programs (H&LP), Headquarters or the Regional Forum, will review each agency's Part 3 Application to determine whether or not all program elements are included. The goal of the Program Review and Approval process is to establish consistency across Washington so that conservation measures are achieved. **The Services will issue approval for each agency to receive a take limit (NMFS) under Limit 10 (ii) of the 4(d) Rule, and/or a reduction or elimination of the prohibition on take of threatened species (USFWS).**

(3) Training

Courses will include the topics of basic ESA, design, biological review, permit activities, maintenance BMPs, and monitoring BMP activities. The WSDOT Technology Transfer (T2) Center, University of Washington, or WSDOT Operations and Maintenance Program in conjunction with the Regional Forum, will develop a curriculum for training maintenance employees in the implementation of the Regional Program that may be taught by T2 instructors or other trainers. Thorough training on all elements of the Regional Program, at applicable levels of implementing agencies, provides consistency across the State so that conservation goals can be met.

For a list of WSDOT training courses and other training opportunities, see WSDOT's Environmental Services Office training web site at:

http://www.wsdot.wa.gov/environment/ems/ems_training.htm

(4) Compliance Monitoring

The objective of compliance monitoring is to evaluate program implementation to accomplish Regional Program conservation goals consistently across the State. Compliance monitoring will take place at several levels: local agency supervisory staff, local agency permitting authorities, and state and federal permitting authorities evaluating BMPs for use and implementation. Each local agency will establish a formal compliance monitoring program for monitoring BMP outcomes and any monitoring that is part of various research projects.

(5) Scientific Research

Case studies in the field, as well as literature research done by others, are included in this program element. The scientific research element will serve to verify effectiveness of BMPs and update BMPs based on the latest technologies. Using information derived from scientific research, conservation opportunities can be maximized.

(6) Adaptive Management

The adaptive management philosophy will apply to all ten elements of the Regional Program. The training, research, biological data collection, and program monitoring elements are the basis for adaptive management. Adaptive management provides a means by which potential adverse impacts are avoided and minimized, and conservation opportunities maximized, as the Regional Program is implemented throughout the State of Washington.

(7) Emergency Response

This element provides a framework under which road maintenance organizations can operate during emergencies. This program element allows for necessary emergency response measures, while keeping the Services and regulatory agencies apprised.

(8) Biological Data Collection

This element includes habitat location information within the ROW and development of a process to train and alert staff where the *Guidelines* need to be applied.

(9) Biennial Reports

The Regional Forum will provide biennial (every 2 years) reports to the Services. Biennial Reports will include a review of the ten program elements, updates on research, recommended BMP changes, and recommended updates on each program element.

(10) Best Management Practices (BMPs) and Conservation Outcomes

Under the Regional Program, BMPs and desired conservation outcomes have been developed for road maintenance activities. The Regional Forum will annually review and update the BMPs. Local agencies and the Services will review the changes the Regional Forum recommends for adoption.

720.04 Maintenance Categories

The following Maintenance Categories are defined in the *Guidelines.* Within each category are descriptions of the road maintenance activities most commonly performed.

Category 1 - Roadway Surface

The roadway surface is part of the Right-of-Way (ROW) structure. The slope of the roadway surface routes water and sediments off the roadway to the shoulder, to an open drainage area or ditch, or enclosed drainage system. Thus, the slope of the

roadway surface is part of the water flow and sediment collection systems. The purpose of repair, replace, install, or maintain roadway surfaces include:

- Pothole and square cut patching
- Removing paved surfaces or roadway base
- Repairing roadway base
- Repaving
- Adding gravel or grading surfaces
- Dust control
- Extending pavement edge
- Paving graveled shoulder
- Crack sealing and overlay
- Chip seal
- Resurfacing
- Pavement marking and traffic channelization
- Traffic control features.

BMPs proposed for maintaining, repairing, installing, or replacing roadway surfaces are designed to achieve one or more of the following habitat goals:

- Protect watercourse, stream and/or water body
- Maximize opportunities for increased infiltration
- Reduce runoff (of dirt, debris, sediment, and petroleum products) from maintenance activity to contribute to restoration of water quality.

Categories 2 and 3 - Enclosed Drainage Systems and Cleaning of Enclosed Drainage Systems

The enclosed drainage system is part of the ROW structure that routes water and sediments from roadways and surface structures through water and sediment collection systems to outlet areas. Facilities can be located within the ROW, public property, separate tracts, easements, or on private property. Enclosed drainage systems, which are used for water quality and quantity treatment, are designed to accumulate sediments over time. Because of limited storage capacity, this sediment should be removed to maintain treatment effectiveness and environmental protection. The purpose of repair, replacement, installation, cleaning and maintenance tasks on enclosed drainage systems includes the following:

- Removing large quantities of sediment and debris from storm water before it enters watercourses or streams
- Ensuring the roadway drainage system removes, collects and conveys water from the ROW to permit the maximum use of the roadway
- Reducing damage to roadway structures
- Protecting abutting property from damage
- Restoring surface water drainage
- Ensuring structural integrity
- Vegetation management

BMPs proposed for maintaining, repairing, installing and replacing enclosed drainage systems are designed to achieve one or more of the following habitat goals:

- Protect watercourse, stream and/or water body
- Reduce worksite pollutants run off to restore or maintain water quality
- Control storage, delivery, and routing of surface and ground water to control volumes and velocities of storm water discharge by cleaning and maintaining system
- Reduce pollutant transport from system breaks by performing repairs.

Category 4 - Open Drainage Systems

Like the enclosed system, the open drainage system is part of the ROW structure that routes water and sediments from roadways and surface structures through water and sediment collection systems to outlet areas. Facilities can be located within the ROW, public property, separate tracts, easements, or on private property. Open drainage systems include storm water conveyance systems that were created entirely by artificial means, such as roadside ditches and storm or surface water run-off facilities. These structures are not watercourses, streams or wetlands. Maintenance tasks may involve the following activities:

- Cleaning
- Reshaping/re-grading
- Erosion control/bank stabilization of drainage system
- Vegetation management
- Removal of debris, trash, yard waste and sediment
- Repair of structures.

These tasks are performed on facilities, retention/detention facilities, swales, pollution control devices, manholes, catch basins, vaults, pipes, culverts, inlets/outlets, and ditches. The open drainage system allows sediment to separate and settle from the water flow, thus cleaning and removing large quantities of sediment out of the storm water system. Maintenance operations are performed when sediment, debris, or vegetation in a ditch impedes flows or storage of water and sediments to a point where safety or structural integrity of the roadway system is jeopardized.

BMPs proposed for maintaining, repairing, and cleaning open drainage systems are designed to achieve one or more of the following habitat goals:

- Protect downgrade habitat by removing sediment
- Protect water quality
- Reduce worksite pollutant runoff to watercourses, streams and/or water bodies
- Maintain or restore the storage, delivery, and routing of surface and ground water
- Control volumes and velocities of discharge by removing sediment loading from drainage systems
- Maintain or restore the storage area of sediment and other pollutants

- Remove sediment from system
- Vegetation management

Category 5 - Watercourses and Streams

Watercourses, rivers and/or streams refer to any portion of a channel, bed, bank, or bottom waterward of the ordinary high water line of the waters of the State. This definition includes areas in which fish may spawn, reside, or through which they may pass, and tributary waters with defined bed or banks, which influence the quality of fish habitat downstream. This definition includes watercourses that flow on an intermittent basis or that fluctuate in level during the year and applies to the entire bed of the watercourse whether or not the water is at peak level. This definition does **not** include irrigation ditches, canals, storm water runoff devices, or other entirely artificial watercourses, except where they exist in a natural watercourse that has been altered by humans.

Some roadside ditches and/or storm water facilities can be watercourses or streams. Proposed maintenance activities within waters of the State will be reviewed prior to work with the Washington State Department of Fish and Wildlife (WDFW) staff to achieve Hydraulic Project Approval (HPA) compliance.

Maintenance tasks for watercourses, rivers and/or streams involve the following activities:

- Structural repair/replacement
- Slope stabilization
- Sediment removal
- Vegetation management
- Debris removal
- Habitat maintenance/improvements, such as, fish ladders, weirs, and LWM.
- Access road maintenance

BMPs proposed for the maintenance of watercourses and streams are designed to achieve one or more of the following habitat goals:

- Protect habitat
- Protect water quality
- Reduce worksite pollutant runoff to watercourses, streams and/or water bodies
- Maintain or restore the storage, delivery, and routing of surface and ground water to control volumes and velocities of discharge by removing sediment loading from drainage system
- Remove sediment from system
- Identify the number of chronic sediment deposit problem sites that require frequent sediment removal.

Category 6 - Stream Crossings

The repair, maintenance, cleaning, installation, replacement or upgrade of pipes, arch pipes, box culverts, fish ladders, weirs, sediment pools, access roads, and bridges are conducted to prevent flooding or catastrophic road failure. Flooding

and road failures can occur from structures filled to capacity, blocked with sediment or debris, damaged or may be undersized. Maintenance within waters of the state will require HPA compliance.

BMPs proposed for maintaining stream crossings are designed to achieve one or more of the following habitat goals:

- Repair, replace, or maintain structure
- Protect habitat and watercourse or stream by, or while, performing maintenance
- Reduce worksite pollutant runoff
- Restore or maintain fish passage through structure
- Maintain or restore the storage, delivery, and routing of surface and ground water to control volumes and velocities of discharge by maintaining structure
- Reduce flooding.

In some cases, habitat restoration work is possible as part of a road maintenance activity. In many cases, this type of work is beyond the scope of routine maintenance activities, but might be done as a capital improvement project or a major restoration project. Whether done on a small scale as part of a maintenance activity, or on a more significant level as a capital improvement project, the following BMPs may apply where ROW is available and to the extent that design/habitat considerations allow:

- Remove artificial bank hardening and/or channel confining structures
- Enhance or add areas for spawning, migration, feeding or rearing habitat
- Create connections to off-channel habitat.

Category 7 - Gravel Shoulders

Maintenance activities on gravel shoulders are performed to ensure the shoulder functions as a filter for sediment, provides bio-filtration, and controls surface water runoff. Maintenance activities include removal of sediment, sod and debris from the shoulder, restore filtering ability; restore proper grade; improve drainage; vegetation control to maintain adequate site distances; and smoothing ruts.

BMPs proposed for maintaining gravel shoulders are designed to achieve one or more of the following habitat goals:

- Protect watercourse, streams, and other water bodies
- Restore or maintain water quality
- Control storage, delivery, and routing of surface and ground water
- Control volumes and velocities of storm water discharge by cleaning and maintaining shoulders, which allows for sheet flow and infiltration
- Reduce sediment transport by removing sediments before they enter watercourses and/or streams
- Maximize opportunities for increased infiltration and/or bio-filtration.

Category 8 - Street Surface Cleaning

Street surface cleaning activities are performed to provide a safe roadway surface. Sweeping reduces sediment loading of the drainage system, surface waters, watercourses, streams, and other water bodies. Water spray systems are used on sweepers to reduce dust. Pickup sweepers remove materials from the roadway.

BMPs proposed for street surface cleaning are designed to achieve one or more of the following habitat goals:

- Restore or preserve water quality
- Protect watercourses, streams and/or other water bodies by performing maintenance
- Reduce sediment transport and loading of drainage systems, watercourses or streams, or other water bodies
- Reduce sediment and pollutant transport and loading of drainage systems, watercourses, streams or other water bodies.

Category 9 - Bridge Maintenance

Bridge repair, replacement, installation and maintenance activities are performed to provide a safe roadway and to protect bridge infrastructure according to local, state and federal regulations. Maintenance activities include inspecting, testing, repairing, replacing, maintaining, painting, or resurfacing various components of the bridge. WDFW reviews and permits activities requiring an HPA prior to work activities.

BMPs proposed for bridge maintenance are designed to achieve one or more of the following habitat goals:

- Contribute to the restoration and/or enhancement of aquatic habitat (HPA)
- Control worksite pollutant runoff
- Maintain or restore fish passage through structure
- Maintain or restore water quality off bridge by maintaining drainage system
- Repair, replace or maintain structure
- Maintain habitat and water course or stream by performing maintenance
- Reduce flooding
- Preserve or restore watercourse or stream velocities impaired by blockages in the vicinity of bridge maintenance activity.

Category 10 - Snow and Ice Control

Snow and ice control activities are performed to provide a reasonably safe roadway surface. Sanding and plowing operations are considered to be work of such importance that they are classified as emergency operations and take precedence over all non-emergency work. **Postevent cleanup is considered a continuation of the activity.**

BMPs proposed for snow and ice control are designed to achieve one or more of the following habitat goals: maintain or restore water quality and protect aquatic habitat and riparian area.

Category 11 - Emergency Slide/Washout Repair

Slides and washouts are caused by the impact of heavy rainfall or freeze and thaw conditions on unstable and/or saturated soils. Slides and washouts may occur on the slope above or below roadways, private property, or sensitive areas. Slide or washout repair activities may include the following:

- Removal of slide/washout material from the ROW
- Backfilling or stabilizing slope
- Reestablishment of damaged roadway features
- Repairing and cleaning the drainage system
- Restoring access roads
- Re-vegetation
- Armoring with rock.

The initial response to emergencies relating to slide and washout repair is covered under Program Element 7, Emergency Response. After the emergency is stabilized, the repair work is covered under this maintenance category.

BMPs proposed for emergency slide/washout repairs are designed to achieve one or more of the following habitat goals:

- Reduce erosion/sedimentation to restore water quality
- Reduce sedimentation loading off-site
- Contribute to the restoration of aquatic habitat (HPA)
- Encourage re-vegetation to stabilize slope and provide riparian habitat near aquatic habitat
- Maintain or restore the storage, delivery, and routing of surface and ground water by restoring the damaged structure.

Category 12 - Concrete Surfaces

The removal and repair of damaged concrete roadways, sidewalks, driveways, and curb and gutter sections are performed to provide a safe roadway and pedestrian traffic infrastructure and to maintain adequate conveyance of surface water to drainage systems. Maintenance activities may also involve the installation of new concrete structures.

BMPs proposed for concrete maintenance activities are designed to achieve the following habitat goal:

- Reduce pollutant runoff to restore water quality.
- Reduce velocities and allowing sheet flow when possible.
- Reduce worksite runoff to watercourses, streams and/or water bodies
- Maintain or restore the storage, delivery, and routing of surface and ground water
- Maintain or restore the storage area of sediments and other pollutants
- Remove sediment from system
- Protect water quality

Category 13 - Sewer Systems

Sewer and storm systems are designed to efficiently collect and remove water from the ROW to permit the maximum use of the roadway, prevent damage to roadway structures, protect abutting property from damages, and restore surface water drainage in combined sewer/storm systems and manage vegetation. To maintain integrity of infrastructure and operational reliability the following systems are repaired, replaced, installed and maintained: treatment facilities; lift stations; pump stations; main lines; collection lines; trunk lines; interceptors; lake lines, access roads, associated ROWs and storage/detention facilities.

BMPs proposed for sewer system maintenance activities are designed to achieve one or more of the following habitat goals:

- Protect watercourses and/or streams
- Reduce worksite pollutants to restore or maintain water quality
- Control the storage, delivery, and routing of surface and ground water to control volumes and velocities of storm water discharge by repairing and maintaining sewer system
- Repairs reduce sediment transport from system breaks
- Maximize opportunities for increased infiltration or infiltration.

Category 14 - Water Systems

Water system maintenance is conducted to maintain the integrity of the infrastructure, collect, treat and distribute clean drinking water, provide additional service and components, maintain operational reliability, and protect health and safety issues. Maintenance activities are performed on the operating components of the water system facilities including but not limited to treatment plants, transmission mains, distribution lines, fire flow systems, reservoirs, tunnels and pump stations, meters, flushing, dewatering, services and associated ROWs or access roads.

BMPs proposed for water system maintenance activities are designed to achieve one or more of the following habitat goals:

- Protect watercourses and/or streams
- Reduce worksite pollutants to restore or maintain water quality
- Control the storage, delivery, and routing of surface and ground water to control volumes and velocities of storm water discharge by restoring surface after installation, repair or replacement of underground piping
- System maintenance and repairs reduce sediment transport from system breaks
- Maximize opportunities for increased infiltration or bio-filtration where possible.

Category 15 - Vegetation

Vegetation is part of the ROW structure. Vegetation maintenance will be conducted in all roadway categories including roadway surface, open and closed drainage, sediment containment, water courses and streams, stream crossings, shoulders, and utilities. The purpose of vegetation maintenance is to promote, maintain, sustain, manage, or encourage vegetation growth within the ROW to

comply with a variety of regulations and standards including public safety. Vegetation maintenance improves visibility, surface and subsurface drainage, fire and pollution control, and clear zone area.

BMPs proposed for maintaining vegetation are designed to achieve one or more of the following habitat goals:

- Improve drainage by reducing erosion
- Reduce the spread of noxious weeds and undesirable vegetation
- Limit erosion
- Increase bio-filtration
- Lower herbicide use
- Provide shading/reduce water temperature
- Provide habitat for macro invertebrates
- Provide LWM

720.05 Exhibits

None.